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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,593	08/31/2001	Ping Xie	10629-802	1721

21971 7590 07/18/2002

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EXAMINER

FINEMAN, LEE A

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s) <i>NE</i>	
	09/944,593	XIE ET AL.	
	Examiner	Art Unit	
	Lee Fineman	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/31/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means for adjusting the length of the complete gap must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities: On page 17, line 20 “fig. 8A” should be --fig. 2A-- and on page 34, line 4 the symbol -- θ -- is missing and should be placed after “where.”

Appropriate correction is required.

Claim Objections

2. Claims 45-49, 53, and 58 are objected to because of the following informalities:

In claims 45, 49, 53, and 58, line 1 “comprise a four or more” should be --comprise four or more--.

✓ In claim 46, line 6 the word “polization” should be --polarization--.

✓ In claims 48 and 49, line 1 there is insufficient antecedent basis for the limitation “the optical circulator.”

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The dependent claims inherit the deficiencies of the claims from which they depend.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 41-45 and 54-58 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear as to whether the adjustment of the length of the gap is made to the circulator during manufacture or in the completed product. In the case that the adjustment occurs during manufacture, the product claims are misdescriptive in that there is no adjusting means in the product. Further, the specification fails to disclose any structure that supports a means for adjusting language of the claims. The dependent claims inherit the deficiencies of the claims from which they depend.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 46-53 and 54-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. In particular, the term "may be" is indefinite because it cannot be ascertained whether the language associated therewith is within the metes and bounds of the claimed combination. Additionally, with respect to claims 54-58 the claims are written in sixth paragraph means plus function and as such, the structure of the claim must be evaluated in regard to equivalents of the structure disclosed. However, no structure has been disclosed. Therefore, the metes and bounds are unascertainable.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 46-48, and 50-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent 6,052,228. Although the conflicting claims are not identical, they are not patentably distinct from each other because they all recite an optical circulator with beam angle turners, specifically modified Wollaston and Rochon prisms. The method of utilizing the structure of the claim is inherent therein.

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6. Claims 49 and 53 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent 6,052,228. Claims 1-4 disclose the claimed invention except for the ports. Official notice is taken that it is well known to one of ordinary skill in the art at the time the invention was made that optical circulators include ports. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that the optical circulator of Xie et al. to include four or more ports to allow the light input/output needed for circulation.

7. Claims 46-48 and 50-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent 6,285,499. Although the conflicting claims are not identical, they are not patentably distinct from each other because they all recite an optical circulator with beam angle turners, specifically modified Wollaston and Rochon prisms. The method of utilizing the structure of the claim is inherent therein.

8. Claims 49 and 53 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent 6,285,499. Claims 1-4 disclose the claimed invention except for the ports. Official notice is taken that it is well known to one of ordinary skill in the art at the time the invention was made that optical circulators include ports. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made for the optical circulator of Xie et al. to include four or more ports to allow the light input/output needed for circulation.

Claims 41-45 and 54-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 8, 14, and 33 of U.S. Patent 6,285,499.

Although the conflicting claims are not identical, they are not patentably distinct from each other

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because they all recite an optical circulator with a longitudinal axis, ports, beam angle turners, specifically modified Wollaston and Rochon prisms, separated by a complete gap.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 41-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirasaki, U.S. Patent 5,982,539.

Regarding claim 41, Shirasaki discloses a method of tuning a spatial separation providing an optical circulator with a longitudinal axis (fig. 2) with a first and third optical port (101, 102) located at the end of the circulator, a second optical port (104) located at a distal end of the optical circulator from the first optical port along the longitudinal axis, a first beam angle turner (figs. 7C, 7D, 8A, 8B) located along the longitudinal axis between the first optical port and the second optical port, a second beam angle turner (figs. 7C, 7D, 8A, 8B) located along the longitudinal axis distally from the first beam angle turner, and the first beam angle turner and the second beam angle turner separated by a complete gap (figs. 7C, 7D, 8A, 8B). Shirasaki also discloses adjusting a length of the complete gap causing a corresponding adjustment in spatial separation between a first light beam traveling for the first optical port to the second optical port and a second light beam traveling from the second optical port to the third optical port wherein the location of the first light beam and the second light beam define the location of the first

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optical port and the third optical port in so far as inherently in order to achieve the alignment of the elements they must have been placed and therefore “adjusted” during the assembly thereof.

Regarding claims 46 and 50, Shirasaki further discloses an optical circulator/nonreciprocal optical device (fig. 2) comprising a first beam angle turner (figs. 7C, 7D, 8A, 8B) and a second beam angle turner (figs. 7C, 7D, 8A, 8B), wherein an e-ray and an o-ray of the optical beam propagate through both the first beam angle turner and the second beam angle turner (fig 2, column 10, lines 7-13), and where the polarization rotators are nonreciprocal (107-1, 107-2, column 4, lines 40- 43). The method of utilizing the structure is inherent therein.

Regarding claim 54, in light of the rejection under 35 U.S.C. 112, first paragraph, the claim is being interpreted as reciting an element present during the assembly of the product. Therefore, as similarly set forth above it is inherent that some “adjustment” was made to the length of the complete gap during assembly, which must have been done by an adjusting means.

Regarding claims 42, 43, 47 51, 55 and 56, Shirasaki further discloses the first and second beam angle turner as a pair of birefringent wedges separated by a complete gap (figs. 7C, 7D, 8A, 8B).

Regarding claims 44, 48, 52 and 57, Shirasaki is silent as to the whether the optical circulator is polarization mode dispersion free, however it is noted that the path lengths of the polarized beams appear to be equal. In addition, Shirasaki recognizes the condition of polarization mode dispersion in a specific embodiment (figs. 11A-D) and corrects it. Therefore it is the position of the examiner the optical circulator of Shirasaki is polarization mode dispersion free.

Regarding claims 45, 49, 53 and 58, Shirasaki further discloses an optical circulator with four optical ports (fig. 2, 101, 102, 103,104).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (703) 305-5414. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

LAF
July 12, 2002



Cassandra Spyrou
Supervisory Patent Examiner
Technology Center 2800